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Your Skin Is a  
Window to  
Your Health

**M**ost of the practice of medicine involves old-fashioned detective work. Indeed, doctors and detectives have always had a special relationship (Arthur Conan Doyle, author of the Sherlock Holmes series, was a physician). In attempting to understand a medical problem, doctors rely on a host of clues: laboratory tests, the history of the problem as related by you, the patient, and the physical exam.

In this tricky and challenging clue-finding effort, our skin proves very valuable. In addition to being our largest sensory organ and, by some standards, our largest organ overall, skin functions as a window to our overall health. While some of the changes in the skin as a result of health problems occur further down the road than we would like, others can be a bit like an early warning system, advising your doctor to order a blood test or an MRI scan to see what is going on inside.

In this chapter I discuss some of the more common skin signs in health and disease. However, please do not try to self-diagnose. If you notice a skin sign that is similar to something you think you have, contact your doctor. Don't panic; don't fuss; just make the appointment. The truth is, most times the skin sign you see will prove to be transient and unrelated to any serious internal problem.

Here is a brief rundown of some skin signs and what they can indicate about internal health problems.

- *A persistent rash across the nose and cheeks* can be a sign of lupus erythematosus. This red rash resembles a butterfly in shape and may be accompanied by raised reddish rashes elsewhere on the body and increased sensitivity to the sun.
- *Cracked skin or bleeding at the nipple* may indicate a form of breast cancer. Other cancers may manifest themselves on the skin as hard nodules.
- *Yellowing of the skin, or jaundice*, may be a sign of hepatitis due to liver disease.
- *Thickened skin*, usually on the backs of the hands and around the neck, can develop in people who have had diabetes for a number of years.
- *Excessively dry skin and dry, brittle hair* may be signs of an under-active thyroid or hypothyroidism.
- *Painful blisters inside the mouth and on the palms and soles* may indicate hand, foot, and mouth disease. This infection is caused by a virus that affects children most frequently. The firm blisters may also be accompanied by red spots or a low fever.
- *A bluish discoloration of the skin*, accompanied by numbness, burning, or tenderness of the fingers and toes, may be a sign of a rare disease of the blood vessels called thromboangiitis obliterans, or Buerger's disease. Most common in smokers, it can cause skin ulcers and, if not treated, even the loss of fingers or toes.

For details on some of these skin signs and the conditions they represent, read on.

## ▪ CANCER AND THE SKIN

Certain internal cancers cause changes in the skin. In these cases, the evidence of disease on the skin will appear after or at the same time that the internal cancer begins to grow.

Studies have shown that the most common cancers to appear on the skin before they are discovered internally are those of the lung, ovary, and kidney. Additionally, studies suggest that somewhere between 1 and 4 per-

### DO DOCTORS GET SICK?

In 1862, the French physician Armand Trousseau drew attention to the association of superficial migratory thrombophlebitis and internal cancer. Characterized by the development of blood clots in the veins just beneath the skin surface, this condition was a sign of cancer of the stomach. What is interesting and tragic about *Trousseau's syndrome* is that Dr. Trousseau himself died of gastric cancer, manifesting his own syndrome at death.

cent of internal cancers will spread to the skin. The cancers most likely to do this include those of the breast, stomach, lung, uterus, kidney, ovary, colon, and urinary bladder. When these malignant tumors travel to the skin they should not be mistaken for skin cancer, which is a different condition altogether. Unfortunately, by the time any of these internal cancers spread to the skin, the cancer must be considered widespread.

When an internal cancer causes signs on the skin, those signs will wax and wane as the internal cancer waxes and wanes. Multiple hard, non-tender nodules can form on the skin as metastases.

### ▪ LIVER DISEASE AND THE SKIN

One of the most common skin signs of internal disease in the digestive system is jaundice, derived from *jaune*, the French word for yellow. Jaundice results from the buildup of bilirubin in the skin. It occurs in newborns and disappears with simple treatment or no treatment at all. The body normally forms a substance called bilirubin from the breakdown of hemoglobin in red blood cells that have become old and need to be recycled. Typically, people with jaundice have a yellow discoloration in areas where there is a high content of elastic tissue. The first place that jaundice occurs is the whites of the eyes, followed by the skin of the face, the roof of the mouth, and the abdominal wall.

Jaundice can be seen best in bright daylight. Some cases of jaundice may exhibit a different color than yellow, depending on where the buildup of bilirubin or its breakdown products have occurred within the body. A greenish hue can be seen in jaundice if the liver has processed the bilirubin and cannot get it out of the bile duct and into the intestines. This

occurs most often when there is a cancer blocking the exit of the bile duct into your intestines.

While jaundice is one sign that can be seen in patients with acute or chronic liver disease, there are, of course, many more signs associated with chronic liver disease. All these skin signs, including jaundice, are signs of advanced liver disease.

Itching is common if there is a problem anywhere in the system that produces bile. For instance, there can be a malfunction with the liver processing bilirubin or a blockage of the duct out of the gallbladder that releases bile into the intestines. Either of these can result in intense itching that leads to uncontrollable scratching. This irresistible scratching can lead to skin abrasions from fingernails, resulting in an increased blotchy discoloration and a thickening of the skin.

Some people with cirrhosis of the liver develop red palms and bruise very easily; this happens when factors necessary for blood clotting are no longer being produced in the liver in adequate amounts. Some people lose large amounts of their body hair and men with chronic liver disease develop increased estrogen (the female hormones); this can lead to enlargement of the breast, shrinking of the testicles, and loss of hair in the armpits or trunk.

Finally, swelling of the ankles is sometimes due to advanced liver disease.

## ▪ KIDNEY DISEASE AND THE SKIN

People with kidney disease experience many changes in their skin. In one large study of patients with failure of the kidneys, 70 percent demonstrated changes in skin color. Forty percent of the subjects had a yellowish tinge to their skin, while 30 percent had an increased tan or brown color to their palms or soles. Again, 70 percent of those studied had fungal infections of their fingernails, toenails, or the bottom of their feet.

About two thirds of kidney-failure patients also have changes in their nails. The most common change is called “half and half” nails, in which the half of the nail closer to the cuticle is white while the other half is normal or pink. This is thought to be due to increased fluid underneath the nail itself.

Almost all people with kidney failure have very dry skin; two-thirds of them experience severe itching. In some cases, this itching gets even worse with dialysis. Although the cause of this itching is unknown, it can get better with artificial ultraviolet light treatment.

## ▪ DIABETES AND THE SKIN

The most common fungal skin infection in people with diabetes is candidiasis. When not enough insulin is present, the amount of sugar in the blood increases. The sugar in the blood serves as food for the yeast known as candida. The most common sign of candidiasis is bright red areas that may have adherent white tissue surrounded by small pimples. These splotches are found in or near mucosal areas, such as the groin, on the tongue, and inside the mouth. People also get these infections in areas of skin folds, such as underneath the breast, or between folds of fat skin, between the fingers, at the base of the fingernails, or even in the nails themselves. Anyone with frequent skin infections such as these should be screened for diabetes.

In addition, approximately one-third of diabetics get thin, scarred dark bumps on the shins that often develop in tandem with thick yellow skin. This condition is called diabetic dermopathy.

A rare skin disease associated with diabetes is *necrobiosis lipoidica*. In this disease, round yellow and brown or orange smooth lesions are seen on the shins. In advanced cases, they may form ulcers. While 90 percent of patients with *necrobiosis lipoidica* have some problem with their sugar metabolism, only three out of every thousand patients with diabetes have this condition.

Adults who develop diabetes normally produce enough insulin but have cells that don't respond to the insulin they make. Those with this insulin resistance may get a condition called *acanthosis nigricans*. Folds of velvety skin, especially in the armpits, neck creases, and the backs of the fingers, develop over time. The skin looks dirty, but this is only because the excess skin possesses increased melanin compared with what is normally present.

Diabetics also develop bacterial infections, including folliculitis (see p. 338), or skin abscesses due especially to staphylococcal bacteria develop. Diabetic patients are also prone to get infections of their ear canals with a bacterium known as *pseudomonas*.

## ▪ THYROID DISEASE AND THE SKIN

The thyroid gland, which sits in the front of the neck just below the Adam's apple, produces a hormone that regulates the overall energy metabolism of the body. When low amounts of thyroid hormone are produced,

fatigue, weight gain, and temperature changes can occur. In mild cases of hypothyroidism (*low* hormone), the skin is dry, scaly, cold, and pale, and the hair is dry. The skin may itch, and the nails can be more brittle.

If hypothyroidism goes on for years unattended, the skin may become yellow and thick throughout the body. The lips and tongue may become thickened, and people often lose hair in the outer portions of their eyebrows. The yellow skin results from an inability to get rid of the carotene pigment (this is found in our daily diet in such foods as carrots). Once the proper diagnosis has been made, thyroid replacement hormones can be prescribed and the skin changes will soon disappear.

If the thyroid gland is overproducing thyroid hormone, a condition called hyperthyroidism occurs. This is much less common than hypothyroidism. When the thyroid gland overproduces, the skin becomes moist, warm, smooth, and red. The skin may still be itchy, and the nails can separate from the nail bed.

## ▪ HORMONES AND THE SKIN

Hormones made by various organs, such as the thyroid gland or pancreas, can affect the appearance of the skin. These hormones might interact directly with cells in the skin, or an excess of hormones can cause a condition within the body that leads to specific skin conditions.

Male-type hormones known as androgens have a great effect on both the oil glands and hair. Women also produce androgens in low quantities in their ovaries and the adrenal glands. Excess androgens in women may cause a severe form of acne, as well as increased facial hair and balding of the scalp. These women may also develop an increased brown coloration of the skin around the genitals and nipples. Any woman experiencing such symptoms should see her physician to check for a possible hormone imbalance. Remember, however, that most severe acne or facial hair in women is hereditary and not related to this hormonal problem.

### *ADDISON'S DISEASE*

For a variety of reasons, the adrenal glands may slow production of their hormones. The key body chemicals produced by these small glands that sit atop the kidneys are cortisol and aldosterone, which is necessary for the absorption and retention of salt in the body.

People who do not produce enough of these hormones release an

increased amount of a stimulating hormone called ACTH from the pituitary gland at the base of the brain. ACTH itself comes from a more plentiful hormone, whose breakdown products affect the pigment of the skin. This is the telltale skin sign for the condition known as Addison's disease. People with Addison's disease maintain a summer tan far into the winter months and develop darkening in areas of pressure and friction, such as the elbows, knees, skin folds, and creases of the palms, as well as the nipples, armpits, and groin. They also crave salt.

## ▪ RHEUMATIC CONDITIONS AND THE SKIN

The group of diseases now known as the collagen-vascular diseases (*rheumatic disease* is the old-fashioned term) have in common antibodies that attack normal cells in the skin and internal organs. These antinuclear antibodies often attack different molecules in the nucleus of cells. Diseases in this group include the various types of lupus erythematosus, dermatomyositis, scleroderma, and rheumatoid arthritis. In these diseases, there is also involvement of the blood vessels in which telangiectasias (broken blood vessels), purplish discolorations of the skin, and inflammation may be seen.

### *LUPUS*

Lupus comes from the Latin word for wolf; this name was applied because the skin of patients often looked as if their skin had been gnawed by a wolf. There are three main types of lupus: lupus of the skin only (discoid lupus erythematosus, referred to also as DLE), lupus mainly of the skin with mild involvement of internal organs (subacute lupus erythematosus), and lupus involving internal organs to a great extent, with or without skin symptoms (systemic lupus erythematosus).

People with lupus are typically very sensitive to the sun. The acute rash seen in people who have lupus involving their internal organs is often called a butterfly rash. The cheek rash represents the wings while the small involvement on the nose simulates the body of the butterfly.

People with lupus may also develop what is called a subacute rash. This can take on a number of forms on sun-exposed areas of the body, but it predominantly occurs on the face and backs of the forearms. This rash can look scaly (like psoriasis) or it can have a number of smooth, round red areas without scaling. The rash may include small, raised red dots in sun-exposed areas.

DLE, a chronic type of rash, is also seen in sun-exposed areas. It may appear in people who have subacute or systemic lupus. In DLE, firm, rough dark patches may be seen with raised rough bumps around hair follicles.

Sores inside the mouth, not unlike canker sores, can also occur in people with lupus. Involvement of the kidneys, joints, linings of the heart and lungs, brain, and blood cells can develop in the internal form of lupus and may occur without any skin symptoms. Just because you experience a sunburn on your face that looks like the butterfly rash does not mean that you have lupus or are at high risk for contracting it.

### *SCLERODERMA AND DERMATOMYOSITIS*

Scleroderma is a rare connective tissue disease in which the skin becomes tense and tight over the entire body, eventually resulting in limited motion.

Dermatomyositis is also an uncommon condition. In this disease, there is weakness of some of the large muscles associated with certain skin findings over the knuckles and eye areas.

### *RHEUMATOID ARTHRITIS*

Rheumatoid arthritis is probably the best-known collagen-vascular disease. The skin of people with chronic rheumatoid arthritis is often pale, translucent, shiny, and thin. This is seen most commonly over the hands and fingers.

Rheumatoid nodules develop in 20 to 30 percent of those with rheumatoid arthritis. These nodules are non-tender firm, fixed, or mobile nodules in the subcutaneous fat, typically found next to bone or cartilage. They occur at the elbow, but they also may be found on the backs of the fingers, the palms, the Achilles tendons, or on the hips. Patients with rheumatoid arthritis may develop red palms as well.

In general, skin signs of internal disease often show up after the internal problem is otherwise easily diagnosed. On the other hand, your dermatologist is always on the lookout for signs of internal problems that should be brought to the attention of your internist or gynecologist. There are many, many other skin clues, such as rare tumors, that can be a sign of internal problems. Ask your doctor if you have any concerns.